TIMEX UPDATE

BY RITA CARR

* On 4/24/84, I spoke with Dan Higgenbottom from the Los Angeles area. He is organizing a venture capitalist effort to acquire the licensing rights from TIMEX COMPUTER CORP. This endevor combines some 47 companies into a publicly held subsidiary of Trinity Magnum of San Diego, CA. There are plans to open a nation wide chain of computer stores named "THE LITTLE COMPUTER STORE" which will carry all books, publications, 5 to 6 thousand pieces of software, and add-on devices. There will be the opportunity for individual investors and user groups to obtain stock in Trinity Magnum and limited partnership in The Little Computer Store. Higgenbottom said the details should be made firm by the end of May, 1984. He also said he would send me the 3-14-84 press release he read to me over the phone. So far, I have not received it nor have I been able to find a copy of it through my computer editor contact at the San Jose Mercury/News. I have also not been able to confirm this business deal with any of my sources.

* I am tracking an uncomfirmed rumor that General Electric is attempting to buy the licensing rights from TIMEX COMPUTER CORP., also.

* Radio Shack's TP-10 thermal printer paper works well with

TIMEX TRADE-IN OFFER FROM MEMOTECH

NEEDHAM, MASS. Memotech Direct Sales Division announces a trade-in, trade-up program. The World's premier manufacturer of Timex / Sinclair add-ons is allowing its Memopack customers to receive credit towards the purchase of the new MTX computer series.

The liberal trade policy provides the customer with up to three hundred thirty dollars allowance on Memotech's Timex / Sinclair compatibles. Trade in values are: 16K Memopack, twenty dollars; 32K Memopack, forty dollars; 64K Memopack, sixty dollars; High resolution graphics, forty dollars; RS 232 interface, forty dollars; Centronics parallel interface, thirty dollars; Memopack assembler, twenty dollars; Memocalc, twenty dollars; Memotext, twenty dollars; Memotech Keyboard, forty dollars.

Memotech will also allow a trade-in of <u>One Hundred dollars</u> for the Sinclair computer towards the purchase of any MTX computer. The MTX512 computers start at $595.00, which includes 64K user RAM, 16K video RAM, and a 24K ROM, with the company's exclusive interacting languages operating system, called II-5. This system allows five interacting command languages to be used by the programmer, with Basic,

TIMELINEZ

Richard Huxtable, a fellow group member from Los Angeles, shares his Stringy Floppy experiences.

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HARDWARE REVIEW

STRINGY FLOPPY for TIMEX 1500

The A & J MICRO DRIVE

There are now 4 parts to the Laws of Computer Configuration: (1) If the price is reasonable, expect the unexpected (usually a "K" cursor); (2) If the price is too much, but you can still afford it, it will do a lot, but not what you bought it for; (3) If you can not afford it at all, it's exactly what you need, and your worst enemy has it; and (4) The A & J Micro Drive is the exception to all of the above. . It's price is reasonable, it does what you buy it for, and the "K" cursor appears only when expected.

The Micro Drive is a system consisting of a high speed, continuous loop, tape "wafer" player, a power supply, cable, and interface which contains a ROM based fast loading program. . The system does not rely upon a sound recording device such as a tape recorder, but loads and saves at high speeds, directly through the accessory port. . The result is that a 32K data file that takes 11.8 minutes to load from a tape recorder, loads in 46 seconds with 100% reliability. . Documentation consists of a 25 page, 8 1/2 x 11 inch booklet, that is very easy to understand.

The interface actually provides two modes of operation. . If you are working with a full capacity program, and can spare no RAM capacity for "frosting on the cake", there is the "economy" mode that, with a "PRINT USR 12348" command, provides the four most needed functions, SAVE PROGRAM, LOAD PROGRAM, RETURN TO BASIC, and CERTIFY. . Even with the economy mode, routines within the basic program permit commands to load and run another program on the same wafer, selection of an

alternate drive unit, writing variables into a data file elsewhere on the wafer, and to read or recall variables from a data file. . These "routine" commands can put another 16K to 32K of data at your fingertips in as little as 20 seconds. . What more could you want? . Frosting, of course!

If the difference between your RAM capacity and your program length leaves 1K to spare, a PRINT USR 12345 in the command mode, will produce this menu:

```
1. GET WAFER DIRECTORY
2. LOAD PROGRAM
3. SAVE BASIC PROGRAM
4. INITIALIZE WAFER
5. RETURN TO BASIC
6. LOAD BY NUMBER
7. SAVE MACHINE PROGRAM
8. SELECT DRIVE
9. COPY WAFERS
```

This menu's main feature is its provision of a directory to the programs on the wafer as well as a statement of the remaining bytes of storage available. . Wafers come in 5', 10', 20', 35', and 50' lengths. . Capacity is estimated at about 7,000 bytes per 5' in the loop. . A 35' loop will handle three 15K programs and the directory, with approximately 5,000 bytes left over for a short "starter" program. . Most machine code programs, including ZX PRO/FILE can be saved with option 3. . Add to all this, the system functions with either a MemoPak Parallel Interface or a T/S 2040 Printer in place (watch out for the ZX PRO/FILE and the T/S 2040, they don't mix without modification), . Only option 7 permits the machine code program to self-start. . Ah Hah! We finally come to the bad stuff!

While you can access the system menu from routines in your own basic programs, with commercial software, you have to break into the program to enter the USR

TIMELINEZ
Review of Stringy Floppy (cont.)
Thanks Dick, excellent review.
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instruction in the command mode. . When you load (unless it is from a "chaining" or option 7 routine), you are returned to the system menu where you must enter the RETURN TO BASIC instruction. . This produces a "K" cursor and you must enter the appropriate "GOTO" start-up command. . Hopefully, you will not accidently "RUN" or GOTO a DIM or other program line that could blow needed variables. . Another regret, is that the chaining routine will RUN the designated program, so, if it is a data file or program making use of strings in memory, a second pass through the wafer is necessary to pick up the strings and variables from a separate data file.

Saving a self-starting machine code program under option 7 in the expanded menu, requires that you know, and provide, the start address, length, and autostart location of the program. . Some machine coded programs contain commands that poke into the top 1K used for the expanded menu. . The result is the system will not SAVE such a program, except in the economy mode, which removes the chance for a self-start load under option 7. . Hopefully, either A & J or the author of the particular program may be able to help reconcile their products.
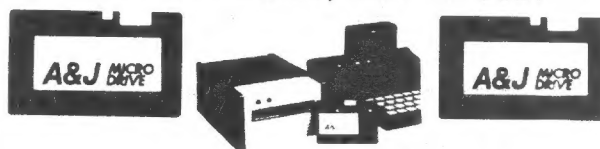
An odd deficit, is that the wafer is so small, and it holds so much, that there isn't enough room on the label to list the wafer's contents. . The unkindest cut of all, is that it does not appear that the system can be used in conjunction with the Memotext word processor, which is easily the best thing available for the T/S 1000/1500. . Luckily, Memotext is an EPROM, and only the text file is recorded anyway.

Admittedly, a disc drive is faster, however, a drive with interface, power supply and cable, usually means $500.00 or more, and

many familiar programs are not available except at new (and greater) acquisition cost. . The A & J Micro Drive system, including 3 wafers to start up with, is available at $149.95 (plus tax, shipping and C.O.D. charges) from A & J Micro Drive, 1050 E. Duane Ave., Suite 1, Sunnyvale, CA. 94086, (408)732-9292. . With it, most of the programs you already have can continue to serve you, and better. . The Micro Drive is a definite step up from the tape recorder, and a good compromise as against the cost of the disc drive.   R.L.Huxtable
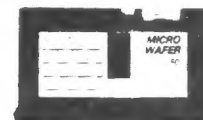
TIMELINEZ is your news-letter. It will be as good as you make it. How about contributing an article, review, letter or whatever?

If you purchase an item advertised in TIMELINEZ please let the sponsor know where you found his ad. THANKS

(CONT. FROM 29)

the T/S printer.   Print is darker and it sells at $3.95/2 rolls.
--C. Raynak, T/S Users Group of Cleveland. (It is .33 inches smaller, but I understand that a poker chip inserted at each end will keep the paper from drifting back and forth.)

TV COMPUTER PROGRAMS
Apr. 28 to May 4, 1984

Saturday
10:00 9 Bits And Bytes
11:00 60 New Literacy
16:30 60 Computer Programme
17:00 60 Making the most of the
         Micro

Sunday
19:00 54 New Tech Times
19:00 60 Bits And Bytes
19:30 54 Making the most of the
         micro
19:30 60 Computer Chronicles
         (Evolution of the
         Computer)

Monday
06:00 60 Computer Chronicles
         (Evolution of the
         Computer)
06:30 54 Computers at Work
12:30 9 Bits And Bytes
15:30 9 New Literacy
16:00 60 Bits And Bytes
16:30 32 New Literacy
19:00 48 Personal Computer Show
20:00 32 Bits And Bytes

Tuesday
18:00 48 Personal computer show
18:00 60 New Literacy
18:30 48 Computer Solutions

Wednesday
15:30 9 New Literacy
16:00 60 Bits And Bytes

Thursday
13:00 60 Computer Chronicles
18:00 48 Personal Computer Show
18:00 60 New Literacy
18:30 48 Personal Computer
         Hot Line (1 hour)
21:30 60 Bits And Bytes

Friday
07:00 9 Computers at Work
12:00 54 Computers at Work
15:00 54 Computer Chronicles
18:00 32 Computers at Work
18:30 32 New Literacy

(CONT. FROM 29)

Noddy, graphics, assembler, and networking. Additionally, a front panel register display is included.

The system allows for various expansion capabilities, including RS-232 ($695.00), Word processing with computer, printer, and New Word on ROM ($999.00), and twin disc system with 1MB unformatted storage ($1,995.00). Local area networking capabilties are possible with the Oxford Ring package for each computer on the net ($174.50).

You can trade in, now, and start computing with the powerful MTX series computers. Memotech has a local representative, Bill Savage, in Cupertino. Call 408-446-5029.

****
   SINCLAIR QL U P D A T E
****

Upcoming events and dates of importance for those interested in the AMERICAN QL.

* May 30 BOSTON COMPUTER SOCIETY
  First official U.S. showing of the QL.

* June 3-6 CHICAGO CONSUMER
  ELECTRONICS SHOW (CES) The QL will be Sinclair's featured attraction at booth 5116, McCormick West.

This information comes from the TIMEX-SINCLAIR SHOPPER, a new publication supported by Sinclair Research and many major Timex-Sinclair third party suppliers (Sunset Electronics has an ad inside). TIMEX-SINCLAIR SHOPPER is available through:

     TS NEWS
     87 Elm Street
     Camden, ME 04843

Sinclair Research is compiling a QL mailing list. To be included write to:
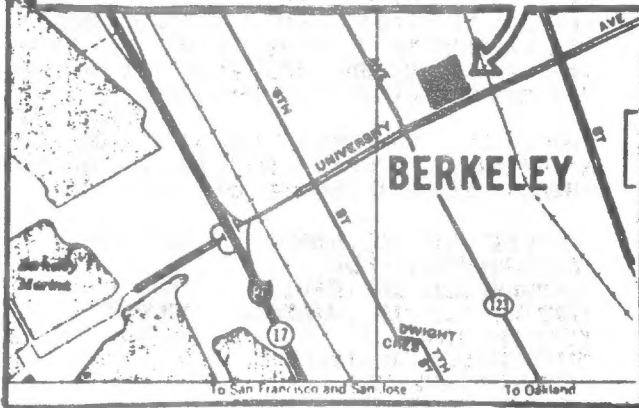
     Sinclair Research
     50 Stanford Street
     Boston, MA 02114

Sinclair Research is sticking to their fall release date for the American QL.

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EBZUG East Bay Z80 User's Group

Meetings begin at 7:30 pm
Next meetings:

Thursday May 17, 1984
Thursday June 21, 1984

We currently use the public meeting room of the West Branch of the Berkeley Public Library. Meetings are generally on the third Thursday of each month - watch for announced changes in this box. Tables and limited power outlets are available (bring power strips) so your equipment is always welcome.

For more information contact:

Joel Brody
3807 Elston
Oakland, CA 94602
(415) 531-6566

Or (Newsletter Ed. and Info.)

Rick Link
854 40th Street
Richmond, CA 94805
(415) 234-3310

PENINSULA USER GROUP

MEET. ROOMS ARE ON LOWER FLOOR.

ELECTRICAL OUTLETS AND TABLES ARE AVAILABLE SO BRING YOUR EQUIP. AND EXTENSION CORDS IF POSSIBLE.

MEMBERSHIP SCHEDULE:

FULL (NEWSLETTER AND S/W LIBRARY PRIVILEGES) $15/YR

PARTIAL (NEWSLETTER ONLY) $10/YR
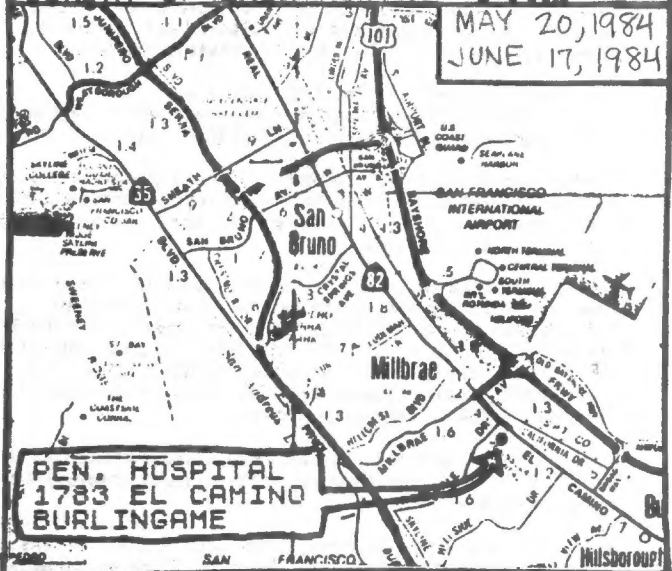
FOR MORE INFORMATION CONTACT:

GEORGE MOCKRIDGE
263 GATEWAY NO. 107
PACIFICA, CA 94044
(415) 359-3198

SEND NEWSLETTER CONTRIBUTIONS:

FRANK MOURA
858 CHENERY ST.
SAN FRANCISCO, CA. 94131
(415) 333-2231

MEETINGS ARE HELD ON THE 3RD SUNDAY OF EACH MONTH. 1 P.M.

MAY 20, 1984
JUNE 17, 1984

PEN. HOSPITAL
1783 EL CAMINO
BURLINGAME

USE NORTH ENTRANCE BY LOADING DOCK

SOUTH BAY T/S USER GROUP

Silicon Valley SINCLAIR/TIMEX User Group (SVS/TUG)
P.O. BOX 4133
Santa Clara, CA 95054-0133
(408) 737-2888 X4579

PRESIDENT	Rita Carr
S/W LIBRARY 2068	Jack Dohany
S/W LIBRARY 1000	Marvin Elwell
DOCUMENT LIBRARY	Jerry Jones
NEWSLETTER EDITOR	Bill Miller
CASSETTE SALES	Pete Sadler

SVS/TUG meets the last Tuesday of the month at:
Dysan Corp. Headquarters
5201 Patrick Henry Drive
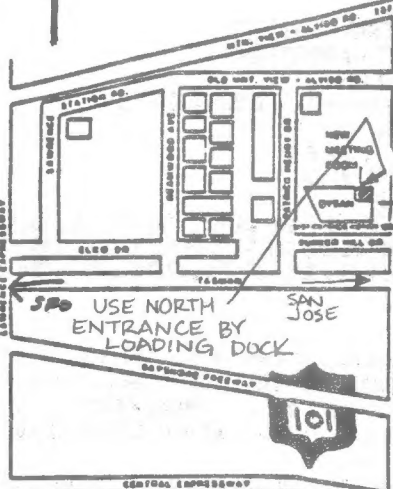Santa Clara

Upcoming meetings:
MAY 29
JUNE 26
JULY 31

Hi, my name is Bill Miller. I'm the new representitive to the TIMELINE editorial staff from the Silicon Valley SINCLAIR TIMEX User Group (SVS/TUG).
I would like to thank Teddy Helderman for his efforts as the past TIMELINE editor.
Teddy has started a user group for the 'Chameleon' computer which takes large amounts of his time.
About the group name revision.
I thought maybe we should put Sinclair's name first since they still sell computers.
I also thought 'Silicon Valley' might be a little more discriptive of our location than 'South Bay'.
If you have any thoughts on this (pro or con) send them to me:
Bill Miller
6675 Clifford Drive
Cupertino, CA 95014
408 258-3175

TIMELINEZ

The following articles were gathered from our
Newsletter exchange program around the country.

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TAMING THE BUG IN VU-CALC T/S 2068
From The T/S Users Group of Cincinnati

If you have tried to use Vu-Calc for the T/S 2068, then most likely you've met the bug. At the beginning, he stays pretty much hidden. It is only after you get used to the program and start doing something useful that he deals his apparently fatal bite.

A sample session with Vu-Calc might go something like this:

Vu-Calc is loaded into the T/S 2068 - no problem. The title and then The Screen$ appear and soon the Vu-Calc spreadsheet itself is on the screen... ready to use. Let's start with something simple, like a loan payoff schedule (maybe not so simple). Anyway, you get the spreadsheet set up the way you want it. Now, you save the data to tape using the option from within Vu-Calc - #1 [ENTER]. With that spreadsheet safely saved, we move on to create another masterpiece. To clear the work sheet we give the command to quite (#q 'return) and we choose the option 2: CLEAR WORKSHEET.

Now, with a clear worksheet, you can start setting up another valuable spreadsheet. Wrong!! Any formula or calculations entered to the program will kick you out and GO TO 9000 won't work. The bug has bitten!

The option "2 : CLEAR WORKSHEET" is the culprit. This was supposed to allow the set up of a new spreadsheet or the reloading of a previously set up Vu-Calc, but it failed. There is, however, an easy, almost trivial, solution.

The first statement in line 3200 should be
    3200 CLEAR 29327:   and then the remainder of Psions
BASIC statement (DIM b$(100): DIM c$(20): etc.).

Without the Clear 29327 statement, The DIM statements cause other variables to be overwritten and lost - namely: e2, e3, bfre, dcontx and others. Not only are their values lost, but they cannot be reassigned!

You now have the solution, now here's how to make the change. From the Vu-Calc program, choose " #q " and then option 1 : EXIT PROGRAM . You should get the error report of " 9 STOP statement, 3100:2 " . Press [CAPS SHIFT] 6 , and then [CAPS SHIFT]] to edit the BASIC program line 3200. Press " X " (CLEAR) and type the number 29327 followed by the colon (:) and press ENTER . That is the change.

To get started back into Vu-Calc, enter the command: GO TO 3200 [ENTER]. You now have the cleared Vu-Calc spreadsheet ready for use.

With the change made as above, I have not had any problems with the workings of Vu-Calc. There are other shortcomings, such as being limited to numbers of seven digits or less, but at least it works.

Hope this helps a little.

BY: GARY SZEKERES

SOME NAMES AT TIMEX
From The Boston Computer Society

Here are a couple of useful names of people who still work at TIMEX Computers.

Elaine Cristillo, 203-573-6815. Elaine is involved with third party documentation.

Cathy Hoolihan, 203-573-5246. Cathy is the person to talk with if you want to buy products direct from TIMEX.

FROM THE TRIANGLE TIMEX USER'S GROUP IN NORTH CAROLINA

Here's a way of going through the display file and darkening up each dot. You can then print out a nice dark, hard copy image. This phenomenal routine was developed for the T/S 2068 by Dick Scoville. TIMELINEZ has done a little work on the basic program and explanation to make it a little more clear.

Here is the program in Z80 mnemoncs and in decimal and in hex--all 29 bytes of it:

```
57786  LD DE,00DD      56576
57789  PUSH DE
57790  LD BC,0003       768
57793  LD HL,(365C)    CHARS
57796  INC H
57797  LD A,(HL)
57798  AND A
57799  RRA
57800  OR (HL)
57801  LD (DE),A
57802  INC HL
57803  INC DE
57804  DEC C
57805  JR NZ,F6        57797
57807  DJNZ F4         57797
57809  POP HL
57810  DEC H
57811  LD (365C),HL    CHARS
57814  RET
57815  NOP
57816  NOP
57817  NOP
```

```
17    0    221  213  1    0    3    42
54    92   36   126  167  31   182  18
35    19   13   32   246  16   244  225
37    34   54   92   201
```

```
11    00   DD   D5   01   00   03   2A
36    5C   24   7E   A7   1F   B6   12
23    13   0D   20   F6   10   F4   E1
25    22   36   5C   C9
```

And here is the Basic/decimal POKE lisitng:

```
1 CLEAR 56575
2 LET a=57786
3 READ n
4 IF n=-1 THEN GO TO 8
5 POKE a,n
6 LET a=a+1
7 GO TO 3
8 STOP
9 DATA 17,0,221,213,1,0,3,42,
54,92,36,126,167,31,182,18,35,19
,13,32,246,16,244,225,37,34,54,9
2,201,-1
```

Type it in, RUN it, then List and RANDOMZE USR 57786. Behold a darker image. Now copy it on the printer and BEHOLD MAGIC!!

If you want to recover the old original alphabet, simply POKE 23607,60.

GAME SCOREBOARD

Load the program with LOAD "GS". After the initial graphics, the screen will ask "HOW MANY PLAYERS?". Respond by entering as many as you need (up to 12 without modifying the program).

Then the screen asks, "WHAT ARE THEIR NAMES?". Enter each name (up to 12 letters) followed by ENTER. After all the names have been entered, the game format comes on the screen.

As each name is shown on the screen, for example, "ENTER NEW SCORE FOR: KEN", enter the numerical score for KEN.

If the score is zero, just press ENTER. If the score is negative, key in the minus sign (SHIFT J) before keying in the number, then press ENTER. That number will be subtracted from the previous total for that player.

The screen also asks if you want to play again with the same (S) or new (N) players. By entering S or N and ENTER, the appropriate routine will be executed.

Tips for keying in the program. Lines 325-335 contain 31 spaces after the letter. Line 340 contains 32 spaces.

Kendric C. Smith, Pres.
SOFTWARE SOLUTIONS
927 Mears Court
Stanford, CA 94305

```
   1 SLOW
   3 PRINT AT 7,5;"GAME SCOREBOA
RD: ""GS"""
   5 PAUSE 60
  10 PRINT AT 10,14;"BY"
  15 PAUSE 60
  20 PRINT AT 13,7;"KENDRIC C. S
MITH"
  25 PAUSE 60
  50 FOR X=3 TO 27
  55 LET Y=4
  60 GOSUB 140
  65 NEXT X
  70 FOR Y=4 TO 16
  75 LET X=27
  80 GOSUB 140
  85 NEXT Y
  90 FOR X=27 TO 3 STEP -1
  95 LET Y=16
 100 GOSUB 140
 105 NEXT X
 110 FOR Y=16 TO 4 STEP -1
 115 LET X=3
 120 GOSUB 140
 125 NEXT Y
 130 PAUSE 120
 135 GOTO 200
 140 PRINT AT Y,X;"▓"
 145 RETURN
 200 CLS
 205 PRINT AT 11,7;" HOW MANY PL
AYERS? "
 207 PRINT AT 20,0;"KEY IN NUMBE
R AND PRESS ""ENTER"""
 210 INPUT Y
 215 CLS
 220 PRINT AT 11,5;" WHAT ARE TH
EIR NAMES? "
 222 PRINT AT 20,0;"KEY IN A NAM
E AND PRESS ""ENTER"""
 225 DIM A$(Y,12)
 230 FOR N=1 TO Y
 235 INPUT A$(N)
 240 NEXT N
 245 CLS
 250 DIM B$(Y,4)
 255 DIM C$(Y,32)
 260 FOR N=1 TO Y
 265 LET B$(N)="0"
 270 NEXT N
 272 PRINT "    GAME SCOREBOA
RD    "
 275 PRINT AT 2,2;"PLAYER";AT 2,
16;"SCORE"
 280 PRINT
 285 FOR N=1 TO Y
 290 PRINT N;TAB 3;A$(N);TAB 17;
B$(N)
 295 NEXT N
 300 PRINT AT 20,0;"      NE
W GAME?      "
 305 PRINT AT 21,3;"SAME OR NEW
PLAYERS? (S/N)"
 310 FOR N=1 TO Y
 315 PRINT AT 16,0;"ENTER NEW SC
ORE FOR:";" ";A$(N)
 320 INPUT C$(N)
 322 FAST
 325 IF C$(N)="S                               " OR C$(N)="N                               " THE
N CLS
 330 IF C$(N)="S                               " THEN GOTO 260
 335 IF C$(N)="N                               " THEN GOTO 205
 340 IF C$(N)="                                " THEN LET C$(N)=
"0"
 530 LET B$(N)=STR$ (VAL B$(N)+V
AL C$(N))
 540 PRINT AT (2+(N+1)),0;N;"   "
;A$(N);"   ";B$(N)
 545 NEXT N
 550 GOTO 310
 560 SAVE "GS"
 570 GOTO 1
```

TIMELINE7

TS 1000/1500 Inverting Screen Display and
Flashing routines. Basic & Assembly versions.

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INVERTING SCREEN DISPLAY

BY: WILLIAM GORDON

A display routine may be enhanced by
flashing the screen, or by changing
the screen from white to black. the
following is a short routine which
almost instantly inverts the screen
display of the TS1000/TS1500 to white
on black, or vice versa.

```
01.  REM 0123456789012345678901234 5678
10.  LGT A$="2A0C400616237EFE76280EFE
     803805DG807718F1C6807718EC0520E9C9
15.  LGT X= 16514
20.  for N=1 to LGN A$-1 Step 2
25.  POKE X,16*CODE A$(N)+CODE A$(N+1)-
     476
30.  LET X=X+1
35.  NEXT N
```

First, start your program with 01 REM
followed by 29 characters. It makes no
difference what they are , but if you
use 0 through 9 repeatedly, it is ea-
sier to keep count. The actual hexide-
cimal listing of the routine is in the
string A$ as set up by line 10. The
rest of the program, lines 15 through
35, is a loader program designed to
replace the characters in the REM state-
ment with the codes represented by
each pair of hex digits.

Run the program once. The REM state-
ment now looks very strange, but con-
tains the entire routine. All the
lines but the REM statement can now be
deleted and your own program can be
typed in. Any time you want to invert
the screen, simply add a program line
RAND USR 16514.

This routine can also be used to simu-
late the flash function of the TS2068.
To flash the screen 6 times and return
to the original color screen, call a
subroutine like this.

```
1000.  FOR N=1 to 6
1005.  RAND USR 16514
1010.  FOR J=1 to 5
1015.  NEXT J
1020.  NEXT N
1025.  RETURN
```

Different values of J will vary the
speed of the flash effect.

ADDRESS	HEX	ASSEMBLER	EFFECT OF INSTRUCTION
16514	2A	LD HL (16346)	Load the HL pair with the address of the start as contained in the system variable "D file" located at address 16396 + 16397.
16515	0C		
16516	40		
16517	06	LD B,22	Load the B register with the number of lines to be altered (22).
16518	16		
16519	23	INC HL	Increase the address contained in HL by one. *
16520	7E	LD A(HL)	Load the A register with the character code found at address HL.
16521	FE	CP,118	Check if it is an "ENTER" (Code 118), if so JUMP to the instruction located 14 bytes further a-long (at address 16539) other-wise, proceed to the instruction at 16525.
16522	76		
16523	28	JR Z,14	
16524	0E		

16525	FE	CP,128	See if the character is normal black on white (code smaller than 128). If so JUMP 5 bytes to the instruction at address 16534. If it is already inverse (white on black) (Code 128, or larger, THEN).
16526	80		
16527	38	JR C,5	
16528	05		
16529	86	SUB A,128	Normalize it by subtracting 128 from its code.
16530	80		
16531	77	LD HL),A	Replace the code in the display with the new normalized one.
16532	18	JR,-15	JUMP back 15 bytes to address 16519 and do again for the next character.
16533	F1		
16534	C6	ADD A,128	If the character was normal, make inverse by adding 128 to its code.
16536	77	LD (HL),A	Replace the code in the display file with the new inverted one.
16537	18	JR,-20	JUMP back 20 bytes to address 16519 and do again for next character.
16538	EC		
16539	05	DEC B	If the last character checked was an "ENTER" (Code 118) end of line, decrease line counter by one, and if the counter is not 0, JUMP back to 16519 to start the next line.
16540	20	JR NZ,-23	
16541	E9		
16542	C8	RETURN	If the counter is 0, all lines have been changed, return to the basic program.

#The display file starts with an "ENTER" character so the second byte of the file is actually the first one to be displayed on the screen.

TIMELINEZ

Many have talked about interfacing a typewriter, but Vivian actually got it done. Congrats.

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INTERFACING AN ELECTRONIC TYPEWRITER TO A ZX81

In order to connect my ZX81 to an Olivetti Praxis 41, I went thru months of fustration. We wanted an electronic typewriter since the print quality is super. It has daisywheels at 10,12 and 15 characters/inch. One can type part of a letter and then insert computerized paragraphs.

However the interface that OEMI sold me did not work. Instead traded it in for a Selectone interface that is adjustable for serial and parallel interfaces. You can adjust for the fact that the ZX81 does not send the proper signal for "next line"(Norman's problem). If you call Tony Medina at (800)421-5389 he will provide the proper cable since he wrote down what he did to get my parallel interface to work.

I also bought an amber 12" screen, Memotext and parallel interface from Memotech, and a 2amp powerpack from Sinclair Place. Wordprocessing ended up costing almost $900, but most of it is reusable on another computer. Also the prices of electronic gear is dropping ever day. Now all I need is a buffer. Someday.

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